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ABSTRACT

Gibb (1964) defined test-wiseness (TW) as the ability to respond advantageously to item clues in a multiple-choice setting and therefore to obtain credit without knowledge of the subject matter being tested. This study investigated TW in a sample of 6th grade pupils. A test instrument was developed utilizing fictitious material similar to the strategy employed by Slakter, et al (1970). The study examined the cognitive correlates of TW through the interpretation of correlational matrices and factor analyses. The results lend support to the notion that TW is not a general trait, but rather is clue-specific. (Author)

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Objectives of the inquiry

The problem investigated in this study falls under the general heading of test-wiseness. Other names for this trait have been offered, such as test sophistication and test wisdom. The actual definition of the term has been difficult to specify and many authors have looked at different aspects of the problem. The definition used here is the ability to respond advantageously to item clues in a multiple-choice setting and to obtain credit on these items without knowledge of the subject matter.

Millman, et al (1965), in a descriptive paper, indicated that certain elements of test construction can be controlled by the item writer and these mainly involve the removal of any item clues which may be present. It is this area which forms a partial basis for test-wiseness-- the correlates of which the present study considered.

Unfortunately, one is faced with little empirical evidence upon which to base a discussion of the correlates of test-wiseness. It has been suggested that certain aspects of test-wiseness may really be some general characteristic of individuals, such as general mental ability or intelligence. Gibb (1964) did present a matrix of intercorrelations among test-wiseness subscales. The data in this matrix indicated that for a naive group of subjects, the variability of correlations was substantial. If test-wiseness was related to some pervasive characteristic of individuals, then these correlations should have been less variable. Indeed, one might take Gibb's data as indicative of the fact that test-wiseness is not some general trait, but is quite specific to the particular clues or cues being investigated.

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The object of this paper was to study the cognitive correlates of test-wiseness and to try to provide data which will help answer the question as to whether test-wiseness is a general mental trait or is scale specific.

Methods

To help insure naivete, 6th grade students served as subjects. A 4-choice multiple-choice test-wiseness scale was built employing fictitious material to insure that knowledge of the subject matter would not enter into the pupils' responses. The scale consisted of thirty items- six in each of five subscales. The five subscales chosen were based, in part, on Gibb's results, and from an analysis of measurement textbooks. The items faults investigated were:

1. Association between stem and correct alternative.
2. Specific determiners
3. The use of correct alternatives which are longer than the other choices.
4. The use of grammatical clues in the stem.
5. Overlapping distractors.

Each student was administered the test-wiseness scale. Additional information gathered on each subject included IQ and achievement test scores and noncognitive information such as age and sex. The IQ scores obtained were from the Lorge-Thorndike Intelligence Tests, Form AA and the achievement battery scores were results from the Iowa Test of Basic Skills, Form 2.

Data sources

Correlational matrices and factor analyses formed the basic data sources. Matrices were examined in terms of variability of entries as well as for patterns which might indicate the cognitive processes underlying performance on each of the scales. For the factor analyses, initial communality estimates were squared multiple correlations, with Kaiser normalization used for rotation.

Results

The mean scores on subscales 1 through 5 and total were respectively: 4.6, 3.0, 3.2, 2.1, 2.7, 15.7. The corresponding standard deviations were 1.5, 1.3, 1.3, 1.2, 2.1, 4.6. These values were above those expected by guessing. Reliabilities (KR_{20}) for the subscales ranged from 0.22 (scales 3 & 4) to 0.80 (scale 5).

The correlations among the subscales ranged from 0.02 to 0.33. This variability would seem to lend weight to the argument that TW is not one general ability, but rather is scale-specific.

The correlations between the TW scores and the Lorge-Thorndike and IOWA scores were equally variable, ranging from 0.00+ to 0.58. All the correlations considered together were interpreted as an indication that some aspects of test-wiseness, as defined here, are related to some general skill or ability, but that the magnitude of the correlations as well as their variability would lend greater weight to the thesis that test-wiseness is quite specific to the cues or clues under investigation.

The results of the factor analyses also added support to the specificity argument. The test-wiseness subscales did not all load on any of the four non-trivial factors extracted. In addition, scores on scale 3 seemed to be so specific as to not load, to any marked degree, on any of the factors.

It was concluded that test-wiseness, defined as a secondary cue response, is a trait possessed by naive subjects and is one which can be reliably measured. The subjects in this study were able to verbalize the principles of test-wiseness being investigated. In addition, all the results were interpreted as supporting the specificity argument outlined above.

Educational importance

If test-wiseness could be shown to be a general cognitive trait,

then one might argue that its effect should not be removed from total test scores in the cognitive domain. However, this study supported the hypothesis that test-wiseness is not a pervasive skill and perhaps test constructors should be sensitive to its presence, and should develop instruments which are not dependent upon test-wiseness or develop procedures for considering its effect, especially in terms of psychometric characteristics such as reliability and validity.